# MEMORANDUM

**TO:** Superintendents, Curriculum Directors, and Middle and High School Principals

**FROM:** Schauna Findlay, Ph.D., Director of Curriculum and Instruction
Zach Foughty, Secondary Mathematics Specialist

**DATE:** October 21, 2010

**SUBJECT:** High School Mathematics Course Pathways for Common Core State Standards

The Common Core State Standards (CCSS) for Mathematics are organized by grade level in Grades K–8. At the high school level, the standards are organized by conceptual category (number and quantity, algebra, functions, geometry, modeling and probability and statistics), showing the body of knowledge students should learn in each category to be college and career ready, and to be prepared to study more advanced mathematics. Achieve convened a group of experts, including state mathematics experts, teachers, mathematics faculty from two and four year institutions, mathematics teacher educators, and workforce representatives to develop Model Course Pathways in Mathematics based on the Common Core State Standards. As this team considered how to implement the high school standards, an important consideration was how the high school CCSS should be organized into courses that provide a strong foundation for post-secondary success. Upon release of the Achieve Model Pathways, IDOE began working with math faculty from colleges and universities across our state to analyze these model pathways and determine if they prepare Core 40 students for our own colleges. This committee found that the Model Pathways do provide the necessary skills in the first 3 years of courses to ensure students are ready for college and career training in Indiana. Therefore, the Achieve Model pathways for Algebra I, Geometry, and Algebra II and for Integrated Math I, II, and III will be used in Indiana.

**As you read the Pathways, there are five things important to note:**

1. All college and career ready standards (those without a +) are found in each pathway. A few (+) standards are included to increase coherence but are not necessarily expected to be addressed on high stakes assessments.

2. The course descriptions delineate the mathematics standards to be covered in a course; they are not prescriptions for curriculum or pedagogy. Additional work will be needed to create coherent instructional programs that help students achieve these standards.

3. Units within each course are intended to suggest a possible grouping of the standards into coherent blocks; in this way, units may also be considered "critical areas" or "big ideas," and these terms are used interchangeably throughout the document. The ordering of the clusters within a unit follows the order of the standards document in most cases, not the order in which they might be taught. Attention to ordering content within a unit will be needed as instructional programs and curriculum maps are developed.

4. Unit titles may be adjusted by IDOE and districts as we move into implementation.

5. Standards for "fourth-year" courses are still under consideration. CCSS "STEM" or + standards and additional standards will be identified for courses which go beyond the three years presented in the Model Pathways. New fourth-year courses with defined standards are in development.

While the focus of this document is on organizing the Standards for Mathematical Content into model pathways for college and career readiness, the content standards must also be connected to the Standards for Mathematical Practice to

ensure that the skills needed for later success are developed. In particular, Modeling (defined by an * in the CCSS) is defined as both a *conceptual category* for high school mathematics and a *mathematical practice* and is an important avenue for motivating students to study mathematics, for building their understanding of mathematics, and for preparing them for future success. Development of the pathways into instructional programs will require careful attention to modeling and the mathematical practices. Assessments based on these pathways should reflect both the content and mathematical practices standards.

**Please see the attached** High School Mathematics Course Pathways 10-10.pdf **for the Model Pathways that will be used in Indiana.**